REMARKS

In the July 21, 2004 Office Action, the Examiner noted that claims 1-27 were pending in the application, rejected claims 1, 2, 4-6 and 10-27 under 35 USC § 103(a) and objected to claims 3 and 7-9 as dependent upon a rejected base claim, but allowable if we rewritten in independent form. In rejecting the claims, U.S. Patents 5,398,300 to Levey and 6,216,048 to Keeler et al. (References C and B, respectively) were cited. Claims 1-28 remain in the case. The Examiner's rejection are traversed below.

The Application

The application is directed to improving speech processing methods to give greater consideration to important input variables when mapping input variables containing speech features onto output variables to increase accuracy and speed (see paragraph [0004]). This is accomplished by a single-stage, integrated system in which a change rule is calculated for a mapping of input variables with different weights onto at least one output variable based on a comparison of a desired output variable with at least one output variable produced by the current mapping. In particular, the change rule reduces the weights of selected input variables having little influence on the at least one output variable.

The Prior Art

U.S. Patent 5,398,300 to Levey

The Levey patent is directed to a combination of a forward-directed neural network and expert system.

U.S. Patent 6,216,048 to Keeler et al.

The Keeler et al. patent is directed to determining the sensitivity of inputs to a neural network on output parameters. First the weights of input quantities are trained, as in a typical neural network, and then the least sensitive input values are eliminated.

Rejections under 35 USC § 103

On pages 2-3 of the Office Action, claims 1, 2, 4-6 and 10-27 were rejected under 35 USC § 103(a) as unpatentable over Levey in view of Keeler et al. First, it is noted that neither of these references contain any mention of applicability to "speech processing" which is the field of the present invention as indicated by the use of this term in the title of the application and the

preambles of all of the independent claims. Nothing has been cited or found to indicate why one of ordinary skill in the art faced with a desire to improve speech processing would look to either Levey or Keeler et al. Therefore, it is submitted that these references are non-analogous art.

Furthermore, Levey is directed to a system that combines a neural network with an expert system. The present invention is not directed to expert systems. Thus, one of ordinary skill in the art would be even less inclined to look to Levey for a solution to a problem found in speech processing.

Second, not only does Levey lack any teaching of reducing the input variable weight, as recognized by the Examiner, but in addition Levey lacks a comparison unit or anything that performs the operation of comparing recited in the independent claims. In the Office Action, it was asserted that the comparison unit recited in claim 26 corresponds to components 15, 23 and 33 taught by Levey Reference numeral 15 corresponds to the inference module illustrated in Fig. 1, reference numeral 23 corresponds to the explanation module and reference numeral 33 corresponds to the Intelligent knowledge acquisition module. It is clear that explanation module 23 is part of the expert system (see column 2, lines 50-52) and includes a function of "Rule Generation" (column 16, lines 2-3).

There are only three occurrences of any form of the word "compare" in the description of the preferred embodiment(s) in Levey. The first occurrence is at column 6, line 20 in the paragraph describing how Boolean decisions are made. The second is at column 11, lines 63 in the description of determining "contribution of the input variable being examined" with reference to Fig. 3A. The third is at column 14, line 6 and is also related to the contribution of the input variable being examined, but in this case with respect to Fig. 4. Clearly, the first occurrence is not related to the present invention and therefore, only the latter two are discussed below.

The second occurrence of "compared" is in the description of the Explanation Module 23 which provides Decision Explanation 25 that "explains any decisions whether tentative or conclusive, by computing the contribution each known input value makes to that decision" (column 11, lines 22-25) and Conclusion Explanation 27 that "examines output bounds to explain how a conclusion was reached" (column 11, lines 27-28). The Conclusion Explanation 27 is described from column 11, line 42 to column 13, line 17. Nothing has been found in this section suggesting that the comparison is between "at least one output variable produced from said mapping with a desired output variable" (e.g., claim 1, lines 4-5).

The last occurrence of "compared" appears in the description of the Decision Explanation at column 13, line 34 to column 14, line 62 with reference to Fig. 4. The comparisons that

are performed appear to be similar to those for the Conclusion Explanation and once again no suggestion of the comparing operation recited in claim 1 has been found. The only difference that has been found is that the contributions to the Decision Explanation can be negative which is not true of the contributions to the Conclusion Explanation.

Nothing was cited or found in Keeler et al. suggesting modification of the system taught by Levey to include the comparing operation recited in the independent claims. Furthermore, as noted above, Keeler et al. discloses a conventional two-stage method in which first the weights of the input quantities are trained, then the number of input quantities of a non-linear predictive network is reduced (see column 2, line 20-24 and column 24, line 45 to column 25, line 48 describing Fig. 18). The claims in the application all recite a single-stage method in which weights of selected input variables are reduced in response a comparison of the output variable and a desired output variable, rather than the elimination of any consideration of input variables as taught by Keeler et al.

For the reasons set forth above, it is submitted that claims 1, 2, 4-6 and 10-27 patentably distinguish over the combination of Levey in view of Keeler et al., even if one of ordinary skill in the art of speech processing was to consider these references.

In addition to the statement in the preamble of all of the independent claims, claim 26 has been amended to clarify that the system operates on "speech input variables" (claim 26, line 2). As discussed above, neither Levey nor Keeler et al. contain any suggestion that the systems disclosed therein are applicable to the processing of speech input variables. Also, claim 26 has been amended to explicitly state that weight is reduced "to a value greater than zero" (column 26, last line). For these additional reasons, it is submitted that claim 26 further patentably distinguishes over the cited prior art.

Summary

It is submitted that the references cited by the Examiner, taken individually or in combination, do not teach or suggest the features of the present claimed invention. Thus, it is submitted that claims 1-27 are in a condition suitable for allowance. Reconsideration of the claims and an early Notice of Allowance are earnestly solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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